

protective agents comprising ginsenoside Rb₁"). As the results, we have found that ginsenoside Rb₁, at such a markedly low concentration range never reported in the world as 1 fg/ml to 100 fg/ml, suppresses apoptosis-like nerve cell death by increasing the expression of a cell death-suppressing gene product Bcl-X_L.

Namely we have found that ginsenoside Rb₁ is the only one non-peptidic stimulator of Bcl-X_L expression in the world. Although ginsenoside Rb₁ at the concentration of 100 fg/ml showed a slightly suppressive action on the formation of lipid peroxides, no such effect was observed at a lower concentration range. Consequently, the hypothesis heretofore presented in relation to the action mechanism of ginsenoside Rb₁, namely the hypothesis that ginsenoside Rb₁ decreases cell membrane lipid peroxides as a result of erasing hydroxyl radicals to protect nerve cells, was found inappropriate.

Further, we have found that intravenous administration of ginsenoside Rb₁ exhibits unexpectedly a superior suppressive action against cerebral infarction and ameliorates infarction-induced place navigation disability (JP98/365560, PCT/JP99/02550: "Brain cell or nerve cell-protective agents comprising ginsenoside Rb₁").

However, if vascular regeneration and reconstruction do not occur in the ischemic brain tissue, i.e. the ischemic penumbra, which is relieved of entering cerebral infarction as

reconstruction by an intravenous administration after cerebral apoplexy as well as protecting the injured or damaged brain for a long period by inhibiting the secondary degeneration of the nervous tissues.

Another object of the present invention is to provide efficacious preparations for administration comprising ginsenoside Rb_1 or its salt useful as the promoters of cerebrovascular regeneration and/or reconstruction and as the inhibitors of secondary nervous tissue degeneration. More particularly, the present invention provides the pharmaceutical compositions comprising ginsenoside Rb_1 or its salt for promoting the cerebrovascular regeneration and/or reconstruction, or the pharmaceutical compositions comprising ginsenoside Rb_1 or its salt which inhibit the secondary nervous tissue degeneration. Further object of the present invention is to provide the preparations comprising ginsenoside Rb_1 or its salt for intravenous administration useful for long term therapy, prevention or treatment of cerebral or nervous diseases.

Brief Description of Drawing

Fig. 1 shows the results of water maze tests using rats intravenously infused with ginsenoside Rb_1 . The left drawing in Fig. 1 shows the results of water maze tests at the second week after MCA permanent occlusion and the right drawing shows the results of water maze tests at the fourth week after MCA occlusion.